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(71) Applicant  
Xerox Corporation

(Incorporated In USA-New York)

Xerox Square, Rochester, New York 14644,  
United States of America

(72) Inventor  
Christopher John Penson

(74) Agent and/or Address for Service  
I R Goode  
Rank Xerox Limited, Patent Department,  
364 Euston Road, London, NW1 3BH

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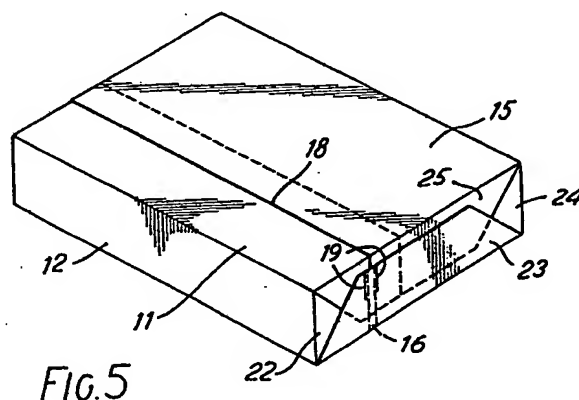
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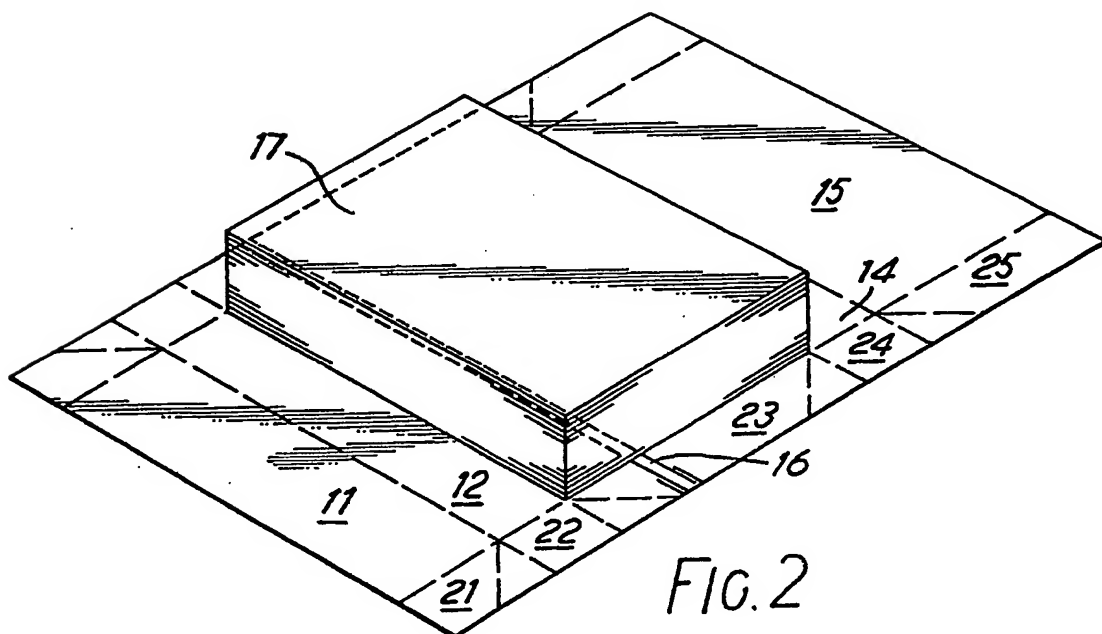
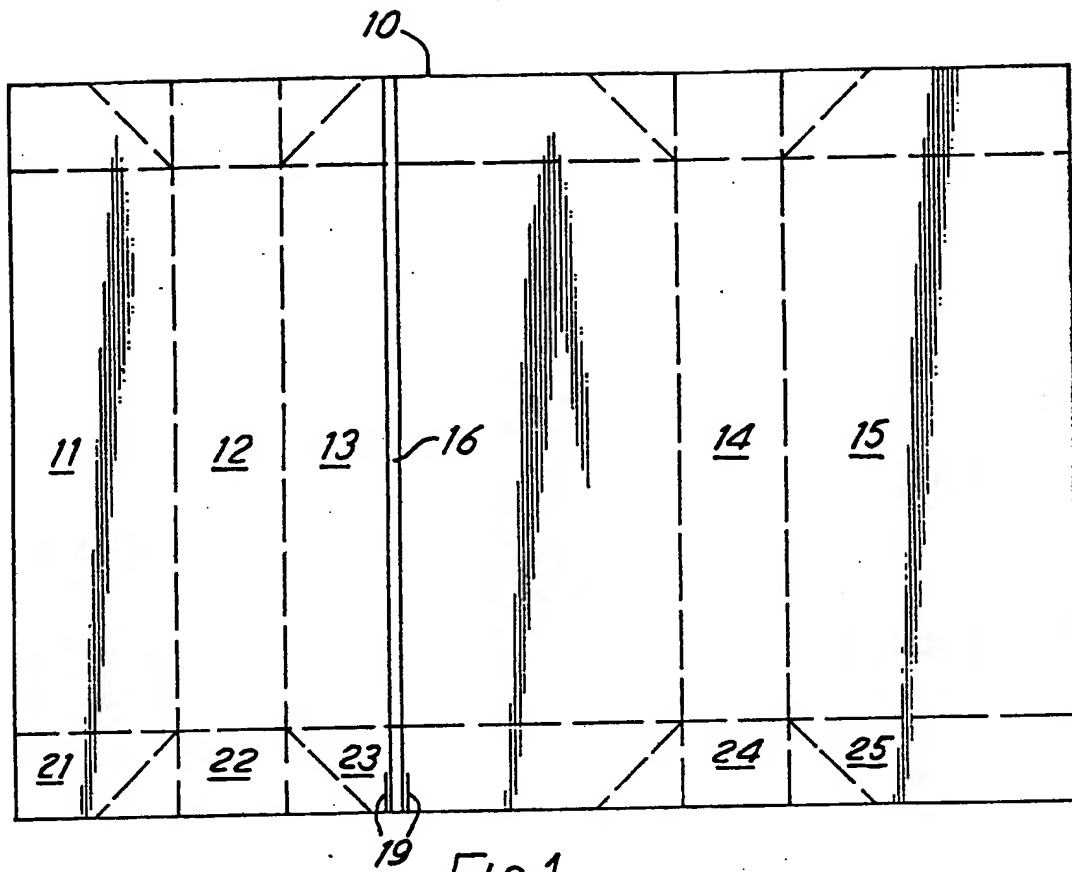
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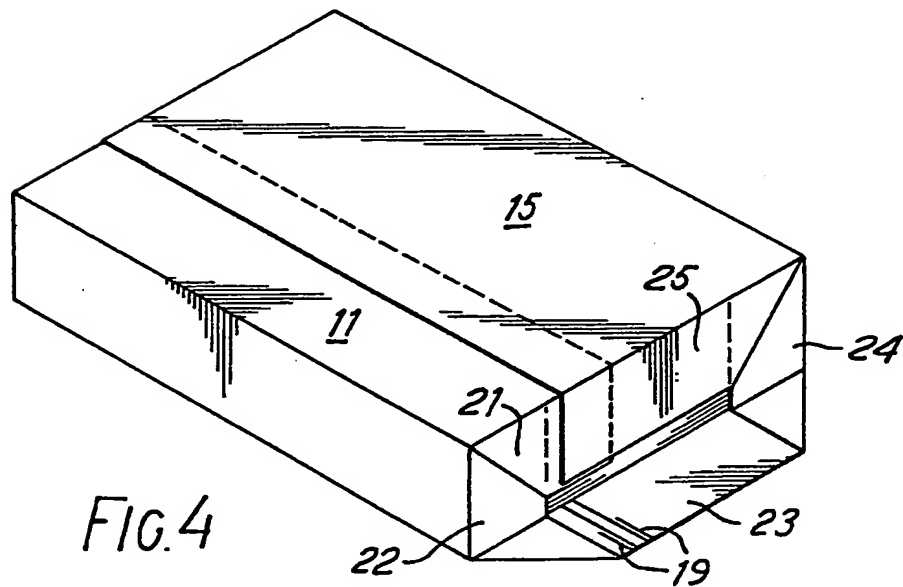
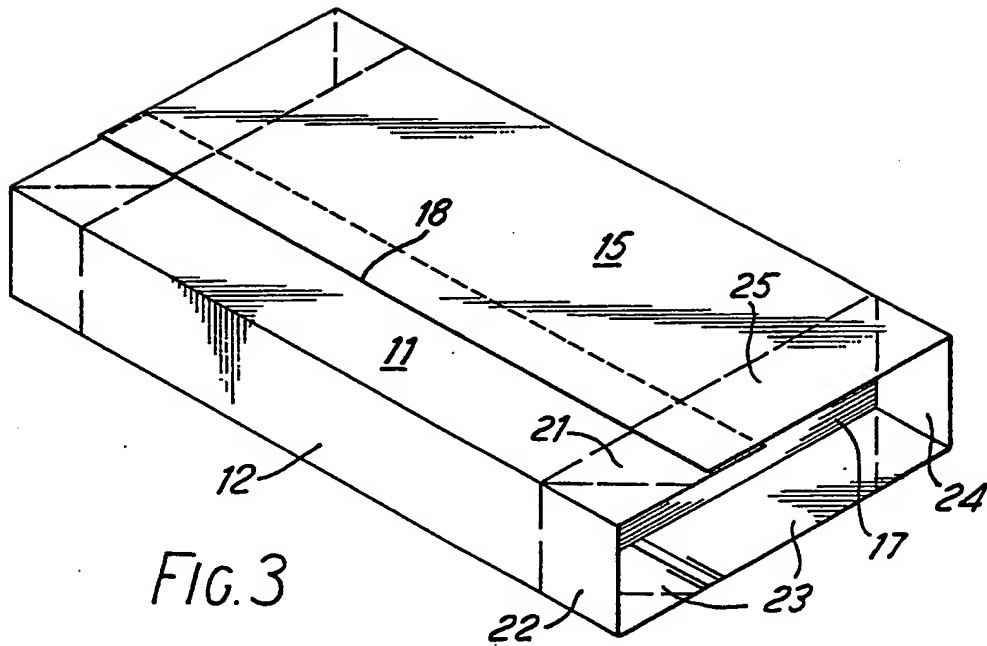
(54) A wrapped sheet stack

(57) A wrapper for a stack of sheets is formed by folding a single sheet around four faces of the stack with an overlap 18 on one of the faces, the resulting package being held together by end flaps 23, 25 secured together at the remaining two faces of the stack. A tear strip 16 is located on the face of the package opposite the face having the overlap and extends generally parallel with the overlap. The tear strip 16 comprises a strip of material stronger than the wrapper and is secured to the inside of the wrapper. The tear strip is in alignment with the overlap 18, and the portions 11, 15 of the wrapper in contact with one another at the overlap 18 are not secured together, whereby on opening the package by use of the tear strip, the wrapper separates into two portions that are divided by a line comprising the tear strip and the overlap.



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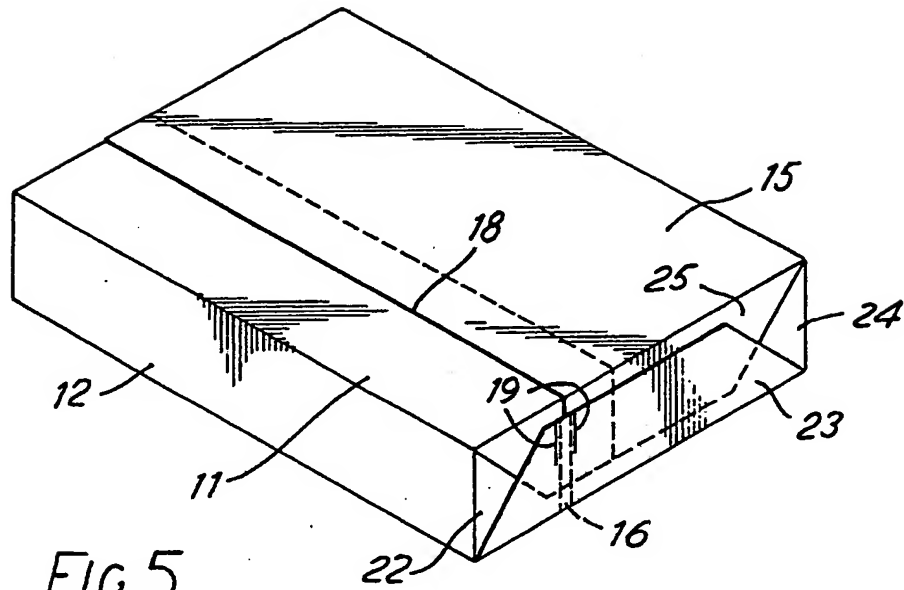


FIG. 5

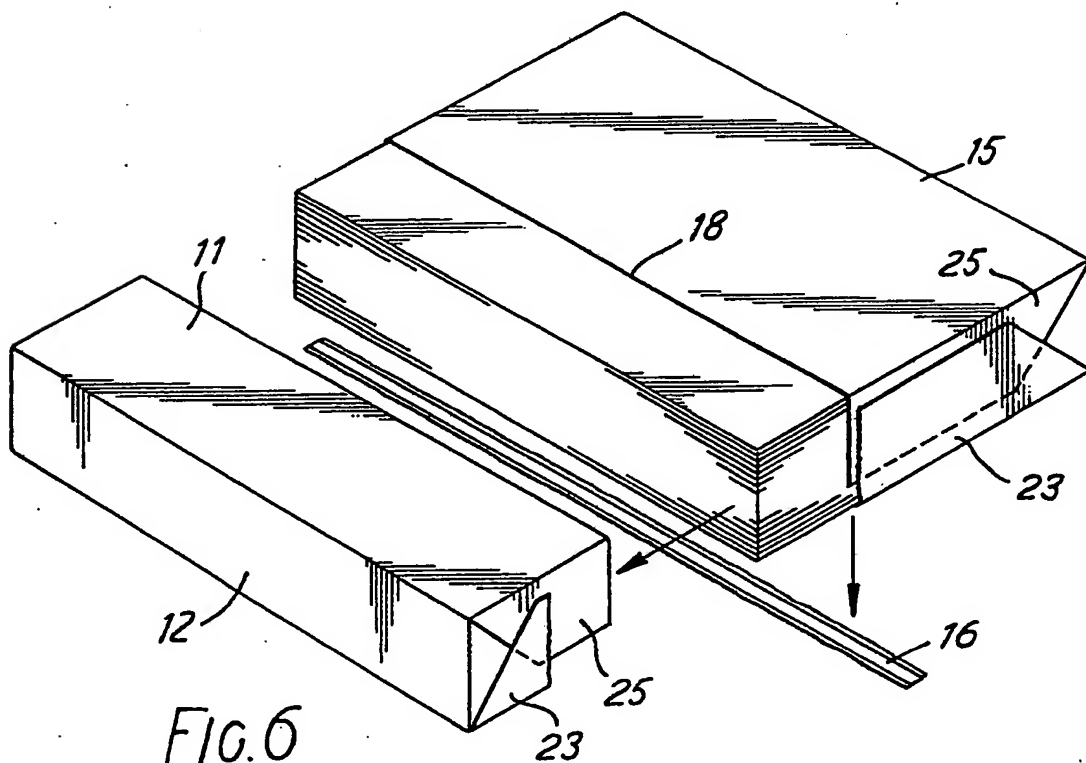


FIG. 6

Wrapper with tear strip

This invention relates to a wrapper formed by folding a single sheet to form a generally cuboidal package. Such a wrapper is in common use for wrapping stacks of paper sheets of the kind used in photocopying machines. A typical package of this kind contains five hundred sheets of paper, and the wrapper itself is usually of paper coated with a moisture barrier material.

In known wrappers of this kind, the wrapping sheet is wrapped around four faces of the package with an overlap on one of the faces, and is held together by end flaps secured together at the remaining two faces of the package. A tear strip is located on the face of the package opposite the face having the overlap, and extends generally parallel with the overlap. A wrapper of this general kind is described in GB-A-2 156 303.

With the increasing use of highspeed copiers, it is desirable to have available packs of sheets containing more than the traditional 500 sheets. However, if packages of one thousand (or more) sheets are provided, they are difficult to handle, especially during unwrapping and when unwrapped. Most of the advantages of supplying the paper in larger packs are lost if the new stack of sheets is broken down into smaller stacks for the purpose of loading the paper more easily into the copying machine. It is therefore desirable to simplify the unwrapping of a large stack of sheets, and for this purpose a tear strip is helpful. It does not, however, overcome the difficulties completely, in that the package still has to be manipulated to an inconvenient extent to enable the wrapper to be removed.

Another problem which arises is that copy paper is not symmetrical, i.e. the two faces of the sheet have different properties. For certain applications, such as use in a Xerox 9700 laser printer, the paper sheets need to be placed in the printer wire side down. However, copy paper is packed with the overlap of the wrapper on the wire side face of the sheet stack. This means that on opening a pack at the overlap, with the overlap on top of the stack, the wire sides of the sheets will be uppermost. Thus the stack needs to be inverted. This is a very difficult operation for a thousand sheet stack, the action of turning the large, unwrapped paper stack carrying a high risk of shingling the stack with attendant damage and contamination during a subsequent squaring up action. Once again, the problem is alleviated by using a tear strip on the face opposite the overlap, but the problem is not overcome completely because of the need to manipulate the stack to remove the entire wrapper.

It is an object of the present invention to provide a wrapper in which the above problems are minimised, by enabling the opening of a package with the least amount of manipulation. The wrapper of the invention is characterised in that the tear strip comprises a strip of material stronger than said sheet and secured to the inside of the wrapper, that the tear strip is in alignment with the overlap, and that the portions of said sheet in contact with

one another at the overlap are not secured together, whereby an opening the package by use of the tear strip, the wrapper separates into two portions that are divided by a line comprising the tear strip and the overlap.

The invention enables a simple and neat separation of the wrapper into two parts, preferably a larger part and a smaller part. The smaller part can be discarded, and the larger part, still containing the stack of sheets, can be used to lift the stack into the copying machine. The remainder of the wrapper can then be withdrawn, or, in appropriate machines, can be left in place. In this latter case, sheets are fed from the stack by means of the edges of the sheets which protrude from the remaining part of the wrapper. This is particularly advantageous in that it maintains good stack integrity, and therefore improved consistency of sheet feeding. After depletion of the stack, the wrapper can be removed before insertion of the next stack of sheets

A wrapper in accordance with the invention will now be described, by way of example, with reference to the accompanying drawings, in which:-

Figure 1 is a plan view of the wrapper before it is used to wrap a stack of sheets;

Figures 2, 3 and 4 are perspective views illustrating successive stages in the wrapping of a stack of sheets;

Figure 5 is a perspective view of a completed package, and

Figure 6 is a perspective view of a package opened by removal of the tear strip.

Referring to the drawings, and in particular to Figure 1, the wrapper 10 starts as a single rectangular sheet, which will be divided by fold lines (as shown by broken lines) into five main panels 11 to 15. Panel 13 forms the lowermost panel of the package in the description which follows, the adjoining panels 12 and 14 accommodate the thickness of the stack of sheets which is to be placed in the package, and the outermost panels 11 and 15 will overlap to form the top panel of the package. Secured to the inside face of bottom panel 13 is a tear strip 16 which comprises, for example, a self adhesive tape of plastics material. The tear strip 16 extends completely across the wrapper as shown. The tear strip 16 can easily be applied to the wrapper 10, in that a continuous strip 16 may be applied to a continuous length of wrapper material, the wrapper material then being cut up into a succession of wrappers 10 each carrying the tear strip.

Portions of the wrapper which will form end flaps are shown on Figure 1 as end flap portions 21 to 25, adjacent the lower portions (as seen in Figure 1) of panels 11 to 15 respectively. Corresponding end flap portions are also provided at the upper end (as seen in Figure 1) of the wrapper 10.

Referring now to Figure 2, a stack 17 of paper sheets has been placed on bottom panel 13 of the wrapper. Referring now to Figure 3, the left-hand top panel 11 is placed on

the stack 17, followed by right-hand top panel 15, which overlaps panel 11 at an overlap position 18. Panel 15 is not secured to panel 11 at the overlap position 18.

The package is secured together by means of the end flaps, which are formed generally as shown in Figure 4. End panels 22 and 24 are placed adjacent the edges of the sheets in the stack 17 by forming diagonal folds at the corners of end flaps 21 and 25. End flaps 21 and 25 are then brought down onto the edges of the stack of sheets, as depicted in Figure 4. The bottom panel 23 is then brought up and secured, for example by means of adhesive, against flap 25 to form the complete package as shown in Figure 5. Panel 23 may be left unsecured in the region of flap 21 to facilitate separation of the two parts of the package.

At an appropriate stage, two short cuts 19 are made on either side of the tear strip 16 so as to form with the end of the tear strip 16 a lifting tab for the tear strip.

The top panels 11 and 15 of the package are so proportioned that the overlap line 18 is located in a suitable position relative to the left-hand side panel 12 of the package. The tear strip 16 is located at the same distance from the side panel 12 so that the tear strip and the overlap line form a generally continuous line around the package.

Paper packages are supplied in boxes from which they are lifted out with the overlap of the wrapper underneath the sheet stack, i.e. in inverted position compared with that shown in Figures 5 and 6 of the drawings. As removed from the box in which it was supplied, the paper stack is thus in the desired orientation for access to the tear strip 16, which is used to tear a strip of the panel 13 from the package. Because the tear strip is aligned with the overlap line 18, and because panels 11 and 15 are not secured together at the overlap, the complete side section of the package can be separated from the remainder of the package, as shown in Figure 6. Once again, it should be borne in mind that the package is inverted compared with its position shown in Figures 5 and 6, which have been shown "upside down" so as to show the features of the invention more clearly. The removed side of the package and the tear strip can be discarded, and the stack of sheets can then be lifted in the remaining part of the package, to its desired location. If necessary the remaining part of the package can then be removed and discarded, or, as explained above, the remaining part of the package can be left in place around the stack of sheets in the copying machine, with the sheets being fed by means of their protruding edges.

Claims.

1. Wrapper formed by folding a single sheet to form a generally cuboidal package, the sheet being wrapped around four faces of the package with an overlap on one of the faces, and being held together by end flaps secured together at the remaining two faces of the package, and a tear strip located on the face of the package opposite the face having the overlap and extending generally parallel with said overlap, characterised in that the tear strip comprises a strip of material stronger than said sheet and secured to the inside of the wrapper, that the tear strip[ is in alignment with the overlap, and that the portions of said sheet in contact with one another at the overlap are not secured together, whereby on opening the package by use of the tear strip, the wrapper separates into two portions that are divided by a line comprising the tear strip and the overlap.
2. The wrapper of claim 1 wherein the tear strip extends to the edge of an end flap, and wherein the end flap is cut alongside the end of the tear strip to define a lifting tab for the tear strip.
3. Method of loading a stack of sheets into a sheet feeding apparatus comprising providing a package in the form of a stack of sheets in a wrapper according to claim 1 or claim 2, opening the package by using the tear strip, removing one of the two portions of the wrapper, placing in the apparatus the stack of sheets contained in the other portion of the wrapper such that the sheets are accessible to the sheet feeder of the apparatus, and removing said other portion of the wrapper from the apparatus after all the sheets in the stack have been fed therefrom.